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Dedication

This dissertation is dedicated to:

First and last, sincere thanks and praise, to almighty God who has given me strength to accomplish this work,

Our great teacher and messenger, *Mohammed* (My Allah bless and grant him),

The memory of my daughter *Djouri Assil* the hidden source of my power and support,

My husband *Djallal Edine* ; who was proud of me all the time ,without his confidence in me ,it would be much more difficult for me to accomplish this work ,

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My beloved honey daughters , *Alaa Niema* And *Mariam Elbatoul*, the reason for my happiness life ,

My best friend and my sister heart *Sarra*

My sisters and brothers the symbol of love and giving.

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Finally, I express my gratitude to all who helped me in conducting my work.

Abstract

The purpose of this research is to learn the basics of the construction of cardiovascular terms and to find out how cardiovascular terms are translated from English into Arabic language. Also to provide the accuracy of the terms adopted in the Arabic version. In order to arrive the results of the above-mentioned question we hypothesize that medical translators could not find the one-to-one accurate equivalent of English cardiovascular terms into Arabic .This research adopted comparative and analytic approach the study comprises 25 English cardiovascular terms, disease, symptoms, anatomy and surgery .The researcher found that Arabic medical translators used variety of translation techniques when translating cardiovascular terms into Arabic especially literal translation and calque.

Key words:

Medical translation, cardiovascular terminology, specialized language translability, translation techniques, literal translation

List of symbol and abbreviations

Adj: Adjective

ASA: Atrial septal aneurysm

ASD: Atrial septal defect

CAD: Coronary artery disease

CVDs: Disorders of the heart and blood vessels

DORV: Double outlet right ventricle

LSP: Language for specific purpose

N:Noun

PFO: Patent foramen ovale

Pr : Preposition

PreP : Present participle

PTA: Persistent truncus arteriosus

RA: The right atrium

SD: Simple derivation

SL: Source language

ST: Source text

TGV: Transposition of the great vessels

TL: Target language

TT: Target text

VDS: Ventricular septal defect

WHO: World health organization

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INTRODUCTION

Introduction

There are verily a lot of contributions of translation in the field of technology and sciences and the many other domains the human have witnessed .Translation has grown swiftly as a result of the growing call for dissemination of statistics inside the techno-scientific fields .Medical terminology is one of the most demanding domain that always seeks translation support; this field has a specialized language used by health care practitioners. Terminology is one of difficulties faced in medical translation, lee- jahnke (2005:82) emphasizes that steps need to be taken to familiarize translators with Greek and Latin terms ,as these terminology will help them to translate better. Many Arabic countries teach medicine in English language .The fact of studding medical terms in English language neglects the Arabic medical terminology counterparts In this work , the focus will be put on the translation of the cardiovascular terminology as one of the basic branches of cardiology. There are numerous efforts accomplished with the aid of the Arabic academy to Arabize scientific phrases & terminology to scientifize Arabic at that level .

Research Problem

The main question of this dissertation is to find out how cardiovascular terms are translated from English into Arabic language.

Purpose of the Study

The purpose of this research is to learn the basics of the construction of cardiovascular terms and the techniques of translation into Arabic in

order to be able to recognize them and learn other new terms when having alike in any translation task.

Research Questions

The main question raised here in this research is the following:

How are English cardiovascular terms translated into Arabic?

In order to answer this question, different other sub-questions have to be asked:

A-What is Medical terminology? and what are its basic features?

B-What are the main criteria adopted in the making of terminology in Arabic?

C- What are the techniques used when translating English cardiovascular terminology into Arabic?

Hypotheses:

In order to answer the above-mentioned question, the following hypotheses are formulated:

1-We hypothesize that medical translators could not find the one-to-one accurate equivalent of English cardiovascular terms into Arabic.

Other sub-hypothesis can also be formulated as follows

a-The structure of the cardiovascular element terms pose serious translation problems.

b- Most of the cardiovascular terms are derived from Latin and Greek languages; therefore, it is difficult to use several translation techniques.

The research Methodology

This research adopted comparative and analytic approach the study comprises 25 English cardiovascular terms, disease, symptoms, anatomy and surgery.

Structure of the Study

The present study consists three theoretical chapters, and practical one.

Chapter one is divide in two parts provides a general background about term and terminology, feature of a technical text and strategies of translating technical terminology from English into Arabic

Chapter two also, is divided in two parts, shows the structure of medical terms, parts of medical terms and translation of medical English terminology into Arabic language.

Chapter three consists of one part presents the main methods of making terminology in Arabic.

Chapter four is the practical part of the study, devoted to compare and analyses 25 cardiovascular terms translated from English into Arabic, ends up with some recommendations that may be considered in the future to solve the problems of translating cardiovascular terms into Arabic.

Limitation of the study

This research was limited by the absence of standardization of the cardiovascular terminology in the Arabic countries.

CHAPTER ONE

Medical terminology translation

CHAPTER ONE: Translation Of Medical Translation

I.1.Introduction

In this chapter provide a general background about term and terminology, feature of a technical text and strategies of translating technical terminology from English into Arabic; then shows the structure of medical terms, parts of medical terms and translation of medical English terminology into Arabic language.

I.2.Terminology

Language for specific purpose (LSP) is described by Ingo (2007, p.83) as a result of more specialized knowledge in a wide range of subject fields such as trade, communication and medicine .Terminology is the product which is generated by the practice; Thus terminology is defined as the set of terms of a subject field.

Terminology is a discipline in that it has delimited theoretical and a defined object of study .like any other theory, it has both theoretical and applied aspects and generates specific applications .terminology is an original discipline in two senses:

first in that its selects from the source subject matters specific bases and others; second it is original in that it reshapes these foundations so as to build up its own space which is distinct from other scientific fields and original with respect to the object, frame, method and goals it pursues.

I.3.Term

Is a words in special function; according to Theodore Savory” terms are symbols designed to transfer a certain amount of encoded information

that is understood only by those who know the appropriate key or code
“(savory 1967, 21).

A term (from the Greek ΤΕΡΜΑ, end BOUNDY) is a word or a collection that refers to a certain concept in a particular field of human endeavor: science, technology, culture, sport art, etc. (vakulenko1994; vakulenko1996b, 5).

I.4.The Differences between term and terminology

While The term is a unit referring to a reality that is expressed by means of a form and used for intercommunication; it is semantically related to inquire.; terminology is only concerned with the synchronic aspect and conceives of term in international sense, and as a result gives priority to methods of term formation that bring historical languages closer to another.

The term is to refer to the subsets of language that are pragmatically characterized by three variables: Subject field, type of user and type of situation in which communication takes place.

On the other hand terminology provide an explanation of three key issues related to knowledge:

- a .How individuals conceive of reality and structure knowledge .
- b. what concepts exist ,how they are formed ,how they are related to one another ,and how they are ordered within the structure of knowledge.
- c. how concepts are related to terms.

These fundamental theoretical question have not received much attention from terminologists because most of them are almost exclusively interested in applications.

I.5. Technical Text

A technical text, is a text intended to educate the reader in a particular subject or skill through in-depth study and practice. Technical texts, such as medical notice, chemistry textbook or manual machine, etc.; fall under the umbrella of didactic literature, which represents any verse or prose work meant to be instructional. There are, however, some characteristics of these texts that set them apart from their other educational relatives. For instance, technical texts can be noted for their meticulous attention to detail. This is because they are intended not simply to inform readers but to engage them in various ideas and processes. According to Joseph Racker a technical writing is that branch in which knowledge a succinct presentation, technical style and scientific process are also of great significance.

I.5.1. Features of Technical Text

Technical texts are written in a business writing style rather than one that is academic or creative in nature:

1-clear

Technical writing presents information clearly, leaving little to no room for misunderstanding. It requires the use of clear, concise sentences.

2-Straightforward

This type of writing is straightforward; it requires relaying information in a way that is direct and straight to the point, without the use of literary devices.

3-precise

The language used in technical writing should be very precise, describing objects and procedures in an exact manner.

4-easily understood

Technical texts avoid words that people may not understand.

5-denotative meanings

This type of writing relies on the denotative meanings of words to ensure that misunderstandings don't occur due to differing interpretations based on connotation.

6-detailed

Technical writing is very detailed and informative, leaving nothing to the imagination.

7-very structured

Technical writing is very structured. This type of writing needs to have an obvious composition that makes it easy for readers to follow along. The audience needs to be able to rely on technical writing for step-by-step instructions.

8-problem-solving focus

Technical documents should be created with problem solving in mind. Readers use these documents to learn how to perform certain tasks or gain technical information, so they should be easy to follow and organized in a way that's easy to refer back to as questions come up.

I.6.The translation of technical terminology

The purpose of technical translation is to present new technical information to a new audience, not to reproduce the source text ,or reflect its style or language; it is a communicative provided in response to very

definite demand for technical information which is easily accessible (in terms of comprehensibility, clarity, and speed of delivery).

Translation strategies that are useable for technical translation terminology are:

1-Translation by recognized translation

This strategy is used in the translation of the terms considered as sub-technical terms or old words with new sense .these terms already exist in the TL with their basic nuclear meaning. It is necessary for the translators to notion of the field register to find out the closest equivalent in meaning so as to make the term accurate and appropriate in the language of the field.

2-Translation by loan Translation

It is the more popular strategy with the development of international cooperation and is employed in the translation of terms which are not lexicalized in the TL. The creation of target culture term to name a new concept from the SL is not always possible. Therefore, in order to transfer their meaning, the best way is to borrow .some are borrowed directly without any change in the form, others are transferred or loan transcription with or without an explanation.

3-Shifts or Transpositions

Is the procedure which is applied when the translation involves a change in grammar from SL to TL. There are four types of shifts:

First, the change from singular to plural or in the position of the adjective; second, the change when the SL grammatical structure does not exist in the TL, for example, the gerund or the active or passive participle construction which are normally translated by a clause in TL. Third, the change where the literal translation is grammatically possible but may not accord with

natural usage in the TL. Fourth, the replacement of a virtual lexical gap by a grammatical structure.

4-Above-word-level Terms

Technical or scientific terms as well as accounting or economic terms in particular are normally formed by compounding.

Classifier (noun) +Thing. This group of compounds Noun + Noun consisting of two nouns which the first noun functions as classifier and helps to distinguish the second noun from the other concepts of the same group.

5-Translation by Shifts or Transpositions

There are two types of transpositions including transposition with the automatic change in word order from SL to TL which is mainly employed in 55% of cases in the translation of the compound terms in the form of simple and unmarked nominal group .The second type of transposition is rank shift which is applied in the translation of the compound terms to the lexical units of the English compound terms In this case these compound terms are equivalent to compound terms with new part of speech in Arabic.

6-Translation by transposition with the automatic change in word order from SL to TL

This transposition procedure needs the change in the position of the adjective or modifying element due to the different sequence of experiential structure of nominal group between English and Arabic

Example:

English	Arabic
Classifier + Thing	Thing + Classifier

7-Translation by a rank-shift

This procedure involves the replacement of a virtual lexical gap by a grammatical structure. To convey the transferred meaning properly, in some cases, it is essential to change the grammatical structure of certain items in the SL text, for instance, a phrase or a word in SL will correspond to a clause in TL and vice versa.

8-Translation by Paraphrase

This translation procedure is applied in the translation of the compound term in the form of nominal group which is semantically complex. In fact it is one kind of dramatic rank shift used in the translation of SL term which has not been technically lexicalized in the TL.

I.7. Medical terminology

Medical terminology are the terms for anatomical parts, diseases, syndromes, drugs, medical equipment and so forth are specific to medical translation. Becoming familiar with the particular terminology in the language involved and being able to solve all sorts of terminological problems, it should be noted that in the translation process more than half of the time is invested in detecting and solving terminological problems.

I.7.1. Parts of medical terms

According to Peggy S. (Essential medical terminology page 4) there are four Parts to a medical terms.

1-Prefix

the word part or element attached to the beginning of the word root to modify its meaning not all medical words have a prefix, when defining a medical term that has both a prefix and suffix; define the suffix first ,the prefix second and word root last ,Eg :

The term pericarditis

Prefix: peri

Word root: cardi

Suffix: itis

2-word root

The meaning or core part of the word medical terms have one or more roots

3-Combining vowel

Usually an O and occasionally an I .used between compound words roots or between a word roots and suffix .when the suffix begins with a vowel the combining vowel in the root word is dropped .when begins with consonant the combining vowel is kept

Eg :

mening_o (root word an combining vowel)and itis(suffix)the word is spelled meningitis

hem_o (root word an combining vowel) and-rrhage the word is spelled hemorrhage

4 -suffix:

Meaning not all root words have a suffix and some words have tow suffixes eg: psychological

Suffix 1: Ic suffix 2-al they are considered one suffix.

I.7.2.Structure of medical terms

Morphologically medical terms can be basically divided into one-word and multiple-word or descriptive terms. One-word terms can be simple (underived) words, derived words, compounds or combinations of de-rived and compound words. Drozd and Seibicke (1973) consider derivation and compounding to be the basic word-forming process.

1 –Derivation

Words which consist of a root and an affix (or several affixes) are called derived words

Derived medical terms can consist of a prefix, one or two word roots, and a suffix in various combinations, as witnessed in the following examples:

myocardium= myo- (prefix) + card(ium) (root)

endocarditis= endo- (prefix) + card (root) + -itis (suffix)

adenoma = aden(o) (root) + -oma (suffi

2-Compounds

The second most productive type of word-formation is compounding. A com-pound word is a fixed expression made up of more than one word, e.g :human being ,blood donor. Compound words may be written:

–as two/three words: blood pressure, blood group, heart attack, central nervous system

–with a hyphen:

life-span ,collar-bone ,birth-control

–as one word:

gallstone ,haemophilia ,leucocytopenia, pseudopolycytemia.

3- Abbreviations

An abbreviation is a shortened form of a word or phrase. There are many ways of forming abbreviations usually, but not always, they consist of a letter or group of letters taken from a word or phrase. Abbreviations occur in written language and their spoken varieties may be only graphic (g – gram, h – hour), both graphic and phonetic (G.P. general practitioner) or acro-nymic . According to Crystal (1995), acronyms are initialisms pronounced as single words, like SARS(Severe Acute Respiratory Syndrome).

4-Initialisms

Initialisms are very popular in written medical English to shorten long descriptive terms. For instance, terms from biochemistry such as:

-deoxy- ribonucleic acid→DNA

-ribonucleic acid→RNA

-Adenosine triphos- phate→ATP

I.7.3. Translation of Medical terminology

Is mainly about translating terms in the medical field from one SL into TL, medical translation shares many features with other type of translation. (legal or literary translation), it is professional activity determined by the assignment; it involves adaptation of cultural differences (Vicente Montal, Maria Gonzalez Davies page 19). also It is related with the degree of specialization among the communication parts and the aim of the text or the conversation.

Example:

1 -communication partners

Professional - professional (doctor - doctor)

Aim: transfer of current specialized knowledge

2- Communication partners

Professional - semi-professional (doctor - medical student/health personnel)

Aim: transfer of basic knowledge

3- Communication partners

Professional - non-Professional (doctor - patient)

Aim: education and practical instruction

4- Communication Partners

Non-Professional - non-professional (journalist - reader)

Aim: arouse interest and turn problems public

I.8. Translation of Medical English Terminology into Arabic Language

The most used when translating medical terms are the direct oblique strategies; these strategies help translator to finding the direct equivalent without modifying the meaning of the TL.

I.8.1. Direct Translation

Used by translators when there are equivalents that can be replaced in TL, it is categorized in five techniques as follow:

I.8.1.1. Borrowing

Using foreign terms from S L and put them into TL the terms are naturalized to agree with the grammar and the pronunciation of TL.

Example:

Insulin	أنسولين
cholera	كوليرا

I.8.1.2. Calque

It is to translate a phrase borrowed from SL literary, maintaining the source language structure and the manner of expression which may not be familiar to TL.

Example:

dawn syndrome	متلازمة داون
Parkinson disease	شلل بانكنسون

I.8.1.3. Transliteration

Is called also Indirect Borrowing, translation loans are built on the pattern of foreign words or phrases with the elements of the borrowing language.

Example:

Corona	كورونا
--------	--------

I.8.1.4.Literal Translation

Called pure translation involves translation from the SL into TL preserving the same effect and wording of the source text.

Example:

colic	غازات
Coma	غيبوبة

I.8.1.5.Paraphrase

When a term developers are comforted with new concepts which they are unable to express with other term formation strategies.

Example:

hematologist	طبيب أمراض دم
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CHAPTER TWO

The Making of Terminology in Arabic

CHAPTER TWO: The Making of Terminology in Arabic

I.2. The main methods of making terminology in Arabic

The main methods of making terminology in Arabic are (i) al-ištiqāq (derivation); (ii) al-taCrīb (arabicization); (iii) al-naht (blending) which can also be referred to as (compounding and coining) and (iv) al-majāz (figurative speech). It remains to be mentioned that these methods were developed by early Arab scholars and grammarians in order to customize the new terms to suit the properties of Arabic.

I.2.1. Derivation al-'iŠtiqāq لإشتقاق

Derivation is a term used in morphology to refer to one of the two main categories or processes of word formation (derivational morphology), the other being inflectional (Crystal 1991). Basically, the result of derivational process is a new word the lexical meaning of derivation in Arabic is to create a new word from another. That is to say, it is the creation of new terms from word roots (radicals). Stetkevych (1970) states that Arabic philology distinguishes three main forms of derivation: (i) al-iŠtiqāq al-šaġīr (simple derivation); (ii) al-iŠtiqāq al-kabīr (wider derivation/metathesis); (iii) al-iŠtiqāq bi al-tarjamah (circumlocution/paraphrasing).

I.2.1.1 . simple derivation (SD) al-iŠtiqāq al-šaġīr الإشتقاق الصغير

Used extensively during the Abbasid period for creating new vocabulary in the fields of philosophy, science and technology. In this process, the radical consonants are not altered but are derived from and built upon. The roots of an Arabic word are traditionally represented by the three consonants, فاء, عين, لام, فعل according to al-mizān al-šarfī the morphological pattern.

The derived forms of the trilateral verb are usually fifteen.
However, the last three forms are rarely used.

faala	فعل	tafāala	تفاعل	ifaālla	إفعلّ
faala	فعلّ	infaala	إنفعل	ifaawala	إفعوعل
fāala	فاعل	iftaala	إفتعل	ifawwla	إفعوّل
afaala	أفعل	ifalla	إفعلّ	ifaanlala	إفعلنل
tafaala	تفعلّ	istafaala	إستفعل	ifaanlā	إفعلنلى

Derivation from abstract nouns by adding a final suffix like āniyyah or iyyah in order to coin a new word. This type is so productive in creating the abstract nouns.

mizāniyyah	ميزانية (budget)	from mīzān	ميزان scale
mas'ūliyyah	مسؤولية (responsibility)	from mas'ūl,	مسؤول (responsible)
ruhāniyyah	روحانية (spirituality)	from rūh	روح sprite

From the following nouns we can derive these verbs

ahmar	(red)	ihmara	إحمرّ	(to turn red)
-------	-------	--------	-------	----------------

sijil	(record)	sajjala	سجل	(to write down)
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I.2.1.2. Circumlocution Al-iŠtiqāq bil-tarjamah الإشتقاق بالترجمة

Also called in Arabic al-iŠtiqāq al-manawī الإشتقاق المعنوي (Derivation of meaning). Circumlocution is a method of introducing new terms into Arabic by giving the meaning of the foreign term.

Example

Cartoon	رسوم متحركة
Video	جهاز تسجيل مرئي

I.2.2. Arabicization al-tarīb التعريب

In general, Arabicization is looked upon as an adopted method for introducing new terms into Arabic. It is the process of rendering foreign terms using Arabic forms. For instance, the following terms are Arabicized via derivation from foreign roots, i.e. loanwords.

Philosophy	falsafah	فلسفة
Democracy	dīmuqrātiyah	ديمقراطية

I.2.3. Blending/Coining -al-naht-النحت

A linguistic unit which is composed of elements that function independently in other circumstances (Crystal 1991). It is the merger of two words into one to mean a new concept. For instance: electromagnetic

kahrumağnātisī is coined from two words electric kahrabā' and magnetic mağnatisī.

I.2.4. Figurative Speech- Al-majāz-المزج

Is the altering of the meaning of existing terms. "This technique takes an existing Arabic term and modifies or extends it to encompass a new meaning" (Nasr and Leaman 2002 p. 909). This procedure is a new mechanism to enrich scientific vocabulary in Arabic. Al-majāz, involves borrowing terms from the same language to be used in different di

Example

The archaic noun sayyarah denoted a caravan travelling in the desert was applied to car. Also the noun hātif denoted invisible caller was replaced by the transliterated foreign term tilifūn (telephone) and it is widely used among Arabs.sciplines.

I.3.Cardiology

Cardiology is a branch of medicine that deals with the disorders of the heart as well as some parts of the circulatory system. The field includes medical diagnosis and treatment of congenital heart defects, coronary artery disease, heart failure, valvular heart disease and electrophysiology. Cardiology is derived from the Greek words "cardia," which refers to the heart and "logy" meaning "study of."

I.3.1.Cardiology diseases

Diseases of heart and blood vessels (CVD), comprise many conditions that vary widely in their particular manifestations and in their impact on health. It includes coronary artery disease (CAD) and other cardiac conditions (congenital, arrhythmias, and congestive heart failure).

What are cardiovascular diseases?

Cardiovascular diseases (CVDs) are a group of disorders of the heart and blood vessels according to the WHO classification they include:

.Coronary heart disease – disease of the blood vessels supplying the heart muscle.

.Cerebrovascular disease – disease of the blood vessels supplying the brain.

.Peripheral arterial disease – disease of blood vessels supplying the arms and legs.

.rheumatic heart disease – damage to the heart muscle and heart valves from rheumatic fever, caused by streptococcal bacteria.

.Congenital heart disease – malformations of heart structure existing at birth.

.Deep vein thrombosis and pulmonary embolism – blood clots in the leg veins, which can dislodge and move to the heart and lungs.

CHAPTER THREE

Practical Part

CHAPTER THREE: Practical Part

I.1.Introduction

This chapter is the practical part of the study ;it attempts to discuss the techniques used when translating English cardiovascular terminology into Arabic. It starts with analyzing and discussing the frequency and the form of cardiovascular terms in the ST moves to etymology of the terms then the techniques used to translating English medical terminology into Arabic so that we know the dominant technique in the translation.

I.2.The Corpus

The corpus is an article from the *Wikipedia for the International Journal of Cardiovascular Medicine, Surgery, Pathology and Pharmacology* is a monthly peer-reviewed medical journal published by Karger. The editor is *Dan Atar*. It was established in 1937 as *Cardiologia* by *Bruno Kisch* and *Wilhelm Löffler*. From 1971, the journal was published under the name *Cardiology* and in 2005 it incorporated the medical journal *Heart Drug* and obtained its current name.

The Text

Helen B. Taussig is known as the founder of pediatric cardiology. She became famous through her work with Tetralogy of Fallot, a congenital heart defect in which oxygenated and deoxygenated blood enters the circulatory system resulting from a ventricular septal defect (VSD) right beneath the aorta. This condition causes newborns to have a bluish-tint, cyanosis, and have a deficiency of oxygen to their tissues, hypoxemia. She worked with Alfred Blalock and Vivien Thomas at the Johns Hopkins Hospital where they experimented with dogs to look at how they would attempt to surgically cure these "blue babies." They eventually figured out how to do just that by the anastomosis of the systemic artery to the pulmonary artery and called this the Blalock-Taussig Shunt ; Tetralogy of Fallot, pulmonary atresia, double outlet right ventricle, transposition of the great arteries, persistent truncus arteriosus, and Ebstein's anomaly are various congenital cyanotic heart diseases, in which the blood of the newborn is not oxygenated efficiently, due to the heart defect.

Tetralogy of Fallot

Tetralogy of Fallot is the most common congenital heart disease arising in 1–3 cases per 1,000 births. The cause of this defect is a ventricular septal defect (VSD) and an overriding aorta. These two defects combined causes deoxygenated blood to bypass the lungs and going right back into the circulatory system. The modified Blalock-Taussig shunt is usually used to fix the circulation. This procedure is

done by placing a graft between the subclavian artery and the ipsilateral pulmonary artery to restore the correct blood flow.

Pulmonary atresia

Pulmonary atresia happens in 7–8 per 100,000 births and is characterized by the aorta branching out of the right ventricle. This causes the deoxygenated blood to bypass the lungs and enter the circulatory system. Surgeries can fix this by redirecting the aorta and fixing the right ventricle and pulmonary artery connection.

There are two types of pulmonary atresia, classified by whether or not the baby also has a ventricular septal defect.

Pulmonary atresia with an intact ventricular septum: This type of pulmonary atresia is associated with complete and intact septum between the ventricles.

Pulmonary atresia with a ventricular septal defect: This type of pulmonary atresia happens when a ventricular septal defect allows blood to flow into and out of the right ventricle.

Double outlet right ventricle

Double outlet right ventricle (DORV) is when both great arteries, the pulmonary artery and the aorta, are connected to the right ventricle. There is usually a VSD in different particular places depending on the variations of DORV, typically 50% are subaortic and 30%. The surgeries that can be done to fix this defect can vary due to the different physiology and blood flow in the defected heart. One way it can be cured is by a VSD closure and placing conduits to restart the blood flow between the left ventricle and the aorta and between the right ventricle and the pulmonary artery. Another way is systemic-to-pulmonary artery shunt in cases associated

with pulmonary stenosis. Also, a balloon atrial septostomy can be done to fix DORV with the Taussig-Bing anomaly.

Transposition of great arteries Dextro-transposition of the Great Arteries

There are two different types of transposition of the great arteries, Dextro-transposition of the great arteries and Levo-transposition of the great arteries, depending on where the chambers and vessels connect. Dextro-transposition happens in about 1 in 4,000 newborns and is when the right ventricle pumps blood into the aorta and deoxygenated blood enters the bloodstream. The temporary procedure is to create an atrial septal defect (ASD). A permanent fix is more complicated and involves redirecting the pulmonary return to the right atrium and the systemic return to the left atrium, which is known as the Senning procedure. The Rastelli procedure can also be done by rerouting the left ventricular outflow, dividing the pulmonary trunk, and placing a conduit in between the right ventricle and pulmonary trunk. Levo-transposition happens in about 1 in 13,000 newborns and is characterized by the left ventricle pumping blood into the lungs and the right ventricle pumping the blood into the aorta. This may not produce problems at the beginning, but will eventually due to the different pressures each ventricle uses to pump blood. Switching the left ventricle to be the systemic ventricle and the right ventricle to pump blood into the pulmonary artery can repair levo-transposition.

Persistent truncus arteriosus

Persistent truncus arteriosus is when the truncus arteriosus fails to split into the aorta and pulmonary trunk. This occurs in about 1 in 11,000 live births and allows both oxygenated and deoxygenated blood into the body. The repair consists of a VSD closure and the Rastelli procedure.

Ebstein anomaly

Ebstein's anomaly is characterized by a right atrium that is significantly enlarged and a heart that is shaped like a box. This is very rare and happens in less than 1% of congenital heart disease cases. The surgical repair varies depending on the severity of the disease.

النص الهدف

طب قلب الأطفال

تُعرَف هيلين ب. توسيغ بأنها مؤسِّسة طب القلب للأطفال، واشتهرت من خلال عملها خلال رباعية فالو، وهو عيب خلقي في القلب حيث يدخل فيه الدم المؤكسج وغير المؤكسد إلى الدورة الدموية نتيجة عيب الحاجز البطيني المتواجد أسفل الشريان الأورطي مباشرة، وتسبب هذه الحالة زرقة الأطفال حديثي الولادة، ونقص وصول الأكسجين إلى أنسجتهم، ونقص تأكسج الدم. وعملت مع ألفريد بلالوك وفيفيان توماس في مستشفى جونز هوبكنز حيث أجروا تجاربهم على الكلاب بحثاً عن كيفية محاولة علاج "حديثي الولادة الزرق" جراحياً، وتوصلوا في نهاية المطاف إلى أنه يمكن القيام بذلك فقط عن طريق مفاغرة الشريان النظامي إلى الشريان الرئوي، وأطلقوا على ذلك تحويلة تحويلة بلالوك-توسيغ.

رباعية فالو، والرتق الرئوي، ومضاعفة مخرج البطين الأيمن، وانقلاب وضع الأوعية الكبرى، والجذع الشرياني المستديم، وشدوذ إبشتاين هي أمراض قلبية خلقية زراقية مختلفة. أمراض القلب الزراقية الخلقية هي التي يكون فيها شيء ما خاطئاً في قلب المولود الجديد، مما يجعله لا يقوم بأكسجة الدم بكفاءة.

رباعية فالو

رباعية فالو هو أكثر أمراض القلب الخلقية شيوعاً، حيث يحدث في حوالي 1-3 حالات من كل 1000 مولود، وسبب هذا العيب هو عيب الحاجز البطيني والشريان الأبهر الممتطي، ويتسبب اجتماع هذين العيبين في تجاوز الدم غير المؤكسج للرئتين والرجوع إلى الجهاز الدوري مرة

أخرى. وعادة ما يتم استخدام تحويلة بلالوك-توسينغ المعدلة لإصلاح الدورة الدموية. يتم إجراء هذه العملية عن طريق وضع التطعيم بين شريان تحت الترقوة والشريان الرئوي الموجود في نفس الجانب؛ لاستعادة تدفق الدم الصحيح.

رتق الرئة

يحدث رتق الرئة في 7-8 من كل 100000 ولادة، ويتميز بتفرع الشريان الأورطي من البطن الأيمن، مما يؤدي إلى دخول الدم غير المؤكسج إلى الدورة الدموية متجاوزا الرئتين. ويمكن للعمليات جراحية إصلاح ذلك عن طريق إعادة توجيه الشريان الأورطي وإصلاح البطن الأيمن واتصال الشريان الرئوي.

وهناك نوعان من رتق الرئة مصنفاً تبعاً إلى ما إذا كان الطفل مصاباً بعيب الحاجز البطني أيضاً أم لا.

رتق رئوي مع حاجز بطني سليم: ويرتبط هذا النوع من رتق الرئة بحاجز كامل سليم بين البطنين.

رتق رئوي مع عيب الحاجز البطني: ويحدث هذا النوع من رتق الرئة عندما يسمح عيب الحاجز البطني للدم بالتدفق من وإلى البطن الأيمن.

بطين أيمن ثنائي المخرج

يحدث البطين الأيمن ثنائي المخرج عندما يكون كل من الشريان الرئوي والشريان الأورطي متصلاً بالبطين الأيمن، وعادة ما يكون هناك عيب في الحاجز البطني في أماكن معينة تختلف اعتماداً على الاختلافات في حالات البطن الأيمن ثنائي المخرج. وقد تختلف العمليات الجراحية

التي يمكن القيام بها لإصلاح هذا الخلل بسبب اختلاف الفيزيولوجيا وتدفق الدم في القلب المعيب، ويمكن علاجه عن طريق إغلاق عيب الحاجز البطيني ووضع قنوات لإعادة تدفق الدم بين البطين الأيسر والشريان الأبهر وبين البطين الأيمن والشريان الرئوي، وهناك طريقة أخرى وهي عمل تحويلة بين الشريان الرئوي والنظامي في الحالات المرتبطة بالتضييق الرئوي.

انقلاب وضع الأوعية الكبرى (تبادل الشرايين الكبرى اليميني)

هناك نوعان مختلفان من انقلاب وضع الشرايين الكبيرة: تبادل الشرايين الكبرى اليميني وتبادل الشرايين الكبرى اليساري، وذلك اعتماداً على مكان اتصال الغرف والأوعية. يحدث تبادل الشرايين الكبرى اليميني في حوالي 1 من كل 4000 مولود جديد عندما يضخ البطين الأيمن الدم إلى الشريان الأورطي، ويدخل الدم غير المؤكسج مجرى الدم. ويتم إصلاح ذلك مؤقتاً عن طريق إنشاء عيب الحاجز الأذيني. ويكون الإصلاح الدائم أكثر تعقيداً، حيث يتضمن إعادة توجيه العائد الرئوي إلى الأذين الأيمن والعائد النظامي إلى الأذين الأيسر، وهو ما يعرف باسم إجراء سيننغ، ويمكن أيضاً القيام بإجراء راستيلي عن طريق إعادة توجيه تدفق البطين الأيسر، مع تقسيم الجذع الرئوي، ووضع قناة بين البطين الأيمن والجذع الرئوي. بينما يحدث تبادل الشرايين الكبرى اليساري في حوالي 1 من بين كل 13000 مولود حديثاً، حيث يضخ البطين الأيسر الدم إلى الرئتين، ويضخ البطين الأيمن الدم في الأبهر. وقد لا يسبب ذلك مشاكل في البداية، ولكن تحدث المشاكل في النهاية بسبب الضغوط المختلفة التي يستخدمها كل بطين لضخ الدم، ويمكن أن يؤدي تبادل البطين الأيسر ليكون البطين النظامي والبطين الأيمن لضخ الدم إلى الشريان الرئوي إلى إصلاح تبادل الشرايين الكبرى اليساري.

الجذع الشرياني المستديم

يحدث الجذع الشرياني المستديم عندما يفشل الجذع الشرياني في الانقسام إلى الشريان الأبهري والجذع الرئوي، ويحدث ذلك في حوالي 1 من كل 11000 مولود حي، مما يسمح بتدفق الدم المؤكسج وغير المؤكسج في الجسم، ويتم الإصلاح عن طريق إغلاق عيب الحاجز البطيني وإجراء راسيتيلي.

شدوذ إبشتاين

يتميز شدوذ إبشتاين بوجود الأذنين الأيمن الذي يتوسع بشكل كبير، وقلب يشبه الصندوق، وحدث ذلك نادر جداً، حيث يحدث في أقل من 1% من حالات أمراض القلب الخلقية. ويختلف الإصلاح الجراحي حسب شدة المرض.

I.3 .Analysis and discussion

The table below includes 25 cardiovascular diseases terms taken from the precedent medical text translated from English (SL) into Arabic (TL).

English Terms	Terms translated into Arabic
Tetralogy of Fallot (TOF)	رباعية فالو
Ventricular septal defect (VSD)	عيب الحاجز البطيني
Cyanosis	الزرقة
Hypoxemia	نقص تأكسج الدم
Anastomosis	المفاغرة
Modified Blalock-Taussig shunt	تحويلة بلالوك-توسيج
Pulmonary atresia	الرتق الرئوي
Double outlet right ventricle	مضاعفة مخرج البطين الأيمن
Transposition of the great arteries	انقلاب وضع الشرايين الكبرى
Persistent truncus arteriosus	الجذع الشرياني المستديم
Ebstein's anomaly	وشذوذ إيبشتاين
Overriding aorta	الأبهر الممتطي
Circulatory system	الجهاز الدوري

Septum	الحاجز
Pulmonary stenosis	التضيق الرئوي
Balloon atrial septostomy	فغر الحاجز الأذيني
Levo-transposition of the ,great arteries	الانقلاب الأيسر للشرايين الكبيرة
Atrial septal defect (ASD)	عيب الحاجز الأذيني
Senning procedure	عملية سنيغ
Rastelli procedure	إجراء راستيلي
Truncus arteriosus	الجذع الشرياني
Aorta trunk	الشريان الأبهر
Pulmonary trunk	الجذع الرئوي
Right atrium	الأذين الأيمن
Subclavian artery	شريان تحت الترقوة والشريان الرئوي

I.3.1.Frequency of the terms in the text

The table below shows the Frequency and the percentage of each cardiovascular term on the ST:

Terms	Frequency	Percentage%	Classification of the frequency
Tetralogy of fallot (TOF)	3	12%	high
Ventricular septal defect (VSD)	5	20%	High
Cyanosis	1	4%	low
Hypoxemia	1	4%	low
Anastomosis	1	4%	low
Modified blalock-taussig shunt	2	8%	high
Pulmonary atresia	8	32%	high
Double outlet right ventricle	3	12%	high
Transposition of the great arteries	5	20%	high
Persistent truncus arteriosus	3	12%	high
Ebstein's anomaly	3	12%	high
Overriding aorta	1	4%	low
Circulatory system	1	4%	low
Septum	1	4%	low
Pulmonary stenosis	1	4%	low
Balloon atrial septostomy	1	4%	Low

Levo-transposition of ,the great arteries	2	8%	high
Atrial septal defect (ASD)	1	4%	low
Senning procedure	1	4%	low
Rastelli procedure	2	8%	high
Truncus arteriosus	3	12%	high
Aorta trunk	1	4%	low
Pulmonary trunk	3	12%	high
Right atrium	1	4%	low
Subclavian artery	1	4%	low

From the table above we can see that 13 out of 25 terms are of low frequency while 12 out of 25 are of high frequency; this prove that both of the frequencies are of similar importance ;we can also notice that the most common term belongs to the high frequency colon.

1.3.2. The form of the terms

Medical terms can be basically divided into one-word and multiple -word terms. One-word terms can be simple (underived) words, derived words, compounds, or combination of derived and compound words.

The two tables under classified in percent the cardiovascular terms according to their form in two categories simple word and compound word:

Simple word	The structure of the terms	Percentage %
Cyanosis	Adj	16%
Hypoxemia	N	
Anastomosis	Aadj	
Septum	N	

compound word	The structure of the terms	Percentage %
Tetralogy of fallot	N+Pr+N	%84
Ventricular septal defect	Adj+N+N	
blalock-taussig shunt	N+N	
Pulmonary atresia	N+N	
Double outlet right ventricle	N+N+Adj+N	
Transposition of the great arteries	N+Pr+Adj+N	
Persistent truncus arteriosus	Adj+N+N	
Ebstein's anomaly	N+N	
Overriding aorta	PreP+N	
Circulatory system	N+N	
Pulmonary stenosis	N+N	
Balloon atrial septostomy	N+Adj+N	

Levo-transposition of the great arteries,	N+N+Pr+Adj+N	
Atrial septal defect (ASD)	Adj+Adj+N	
Senning procedure	PreP+N	
Rastelli procedure	N+N	
Truncus arteriosus	N+N	
Aorta trunk	N+N	
Pulmonary trunk	N+N	
Right atrium	Adj+N	
Subclavian artery	Adj+N	

From the tables above we can notice that four (4) terms are simple words and (21) form compound words; this prove that the compound words are the dominant structure especially the structure: N+N.

I.3.3.Etymology of the terms

Medical terms and their roots correspond to their Greek and Latin etymology, the knowledge and language of both cultures merged, resulting in new medical concepts regarding disease treatment and containment.

The table below shows the Percentage of the cardiovascular terms originated from the Greek language:

Geek	Percentage %
Pulmonary stenosis	24%
Senning procedure	
Tetralogy of fallot	
Hypoxemia	
Anastomosis	
Modified blalock-taussig shunt	

The table below shows the Percentage of the cardiovascular terms originated from the Latin language:

Latin	Percentage %
Ventricular septal defect	76%
Pulmonary atresia	
Double outlet right ventricle	
Transposition of the great arteries	
Persistent truncus arteriosus	
Ebstein's anomaly	
Overriding aorta	
Circulatory system	
Cyanosis	
Balloon atrial septostomy	

Levo-transposition of the great arteries,	
Atrial septal defect (ASD)	
Septum	
Rastelli procedure	
Truncus arteriosus	
Aorta trunk	
Pulmonary trunk	
Right atrium	
Subclavian artery	

The two tables indicated that most of the terms are derived from the Latin language which gives a priority to translators to refer to the Latin dictionary when dealing with the medical terms .

I.3.4.The translation of the terms

The tables below show the translation of the terms into Arabic and the technique used in the translation.

Sample: 1

English term	Arabic term	Technique of translation
Tetralogy of fallot (TOF)	رباعية فالو	calque

Tetralogy of Fallot (TOF):

It is a congenital heart defect; symptoms at birth may vary from none to severe Later, there are typically episodes of bluish color to the skin known as cyanosis. When affected babies cry or have a bowel movement, they may develop a "tet spell" where they turn very blue, have difficulty breathing, become limp, and occasionally lose consciousness.

The term is translated via the procedure of CALQUE as it is translated as it is semantically and formally. The first part Tetralogy which means FOUR is translated to the Arabic adjective.رباعية

And is formed as a feminine noun to go with the grammatical gender agreement of the noun being used with “Fallot” left as it is a proper noun. If we consider its combination form as it is mentioned in the above table find:

Noun + Pre+ Noun while in Arabic it is Adj+ Noun .

The structure in Arabic allows us to gain TWO VS THREE in English which actually represents a gain at terminology level.

Sample: 2

English term	Arabic term	Technique of translation
Ventricular septal defect (VSD)	عيب الحاجز البطيني	Literal translation

Ventricular septal defect (VSD) Latin

From the Latin word septum, it is a defect in the ventricular septum, the wall dividing the left and right ventricles of the heart. The extent of the opening may vary from pin size to complete absence of the ventricular septum, creating one common ventricle

The term is translated via the procedure of Literal translation without changing semantically or morphologically the word Ventricular is translated into Arabic the adjective البطيني the word Septal translated to Arabic noun الحاجز the word Defect translated into Arabic noun عيب , also we notice that the structure in Arabic is the same in English Adj+N+N

The number of the elements equal those in the Arabic counterpart.

Sample: 3

English term	Arabic term	Technique of translation
Cyanosis	الزرقة	Literal translation

Cyanosis

Is the bluish or purplish discoloration of the skin or mucous membranes due to the tissues near the skin surface having low oxygen saturation.

The term is translated into Arabic by the procedure of Literal translation
Cyanosis is translated to Arabic noun الزرقاة ; the grammatical level was changed from an adjective in English to a noun in Arabic

Sample: 4

English term	Arabic term	Technique of translation
Hypoxemia	نقص تأكسج الدم	Paraphrase

Hypoxemia

Is an abnormally low level of oxygen in the blood; more specifically, it is oxygen deficiency in arterial blood. It is translated to Arabic by using the procedure of Paraphrasing ,the prefix Hypo translated into Arabic adjective نقص the root oxemia translated into Arabic as an adjective +noun تأكسج الدم the structure in Arabic gains THREE VS TWO terms in English which actually represents a gain at terminology level.

Sample: 5

English term	Arabic term	Technique of translation
Anastomosis	المفاغرة	transliteration

Anastomosis

Is a connection or opening between two things (especially cavities or passages) that are normally diverging or branching.

The term translated into Arabic by the transliteration procedure, the noun Anastomosis translated into Arabic noun المفاغرة without changing the structure or the grammatical level of the term in the ST

From the Arabic word فغر which means “mouth” as it draws how it is opened imitating the opening of the mouth.

Sample: 6

English term	Arabic term	Technique of translation
Blalock-taussig shunt	تحويلة بلالوك-توسيف	calque

Blalock–Thomas–Taussig shunt (called the Blalock–Taussig shunt)

is a surgical procedure used to increase blood flow to the lungs in some forms of congenital heart disease.

The term is translated via the procedure of CALQUE translated as it is semantically and formally the proper noun Blalock-taussig left as it is a proper noun in Arabic بلالوك-توسيف the noun shunt translated to the Arabic noun تحويلة so the structure in Arabic is the same in English.

Sample: 7

English term	Arabic term	Technique of translation
Pulmonary atresia	الرتق الرئوي	Literal translation

Pulmonary atresia

is a congenital malformation of the pulmonary valve in which the valve orifice fails to develop. The valve is completely closed thereby obstructing the outflow of blood from the heart to the lungs.

The term is translated literally into Arabic as it is in English the term atresia means in English an opening or passage in the body translated to Arabic noun الرتق and the noun Pulmonary translated to Arabic noun الرئوي , the translating term is from the same structure of the ST.

Sample:8

English term	Arabic term	Technique of translation
Double outlet right ventricle	مضاعفة مخرج البطين الأيمن	Literal translation

Double outlet right ventricle (DORV)

is a form of congenital heart disease where both of the great arteries connect (in whole or in part) to the right ventricle (RV). In some cases it is found that this occurs on the left side of the heart rather than the right side.

The term is translated via the procedure of literal translation with same meaning and morphology the noun Double translated into arabic to the noun مضاعفة and the noun outlet to the Arabic noun مخرج , the adjective right translated to arabic adjective الأيمن and the noun ventricle translated to the arabic noun البطين.

Sample: 9

English term	Arabic term	Technique of translation
Transposition of the great arteries	انقلاب وضع الشرايين الكبرى	Literal translation

Transposition of the great vessels (TGV)

is a group of congenital heart defects involving an abnormal spatial arrangement of any of the great vessels: superior and/or inferior venae cavae, pulmonary artery, pulmonary veins, and aorta.

The term is translated literally to Arabic as it is in English the same meaning of words, Transposition translated into Arabic by انقلاب the arteries translated to الشرايين great translated to الكبرى.

Sample: 10

English term	Arabic term	Technique of translation
Persistent truncus arteriosus	الجذع الشرياني المستديم	Literal translation

Persistent truncus arteriosus (PTA)

Often referred to simply as Truncus Arteriosus; is a rare form of congenital heart disease that presents at birth. In this condition, the embryological structure known as the truncus arteriosus fails to properly divide into the pulmonary trunk and aorta.

The term is translated via the procedure of literal translation with same meaning and structure of the words the adjective Persistent translated to Arabic adjective المستديم, the noun truncus translated to الجذع arteriosus translated to the Arabic adjective الشرياني.

Sample: 11

English term	Arabic term	Technique of translation
Ebstein's anomaly	شدوذ إيشتاين	calque

Ebstein's anomaly

is a congenital heart defect in which the septal and posterior leaflets of the tricuspid valve are displaced towards the apex of the right ventricle of the heart.

The term is translated via the procedure of CALQUE translated as it is semantically and formally the proper noun Ebstein translated to the proper noun إيشتاين and the noun anomaly translated to the Arabic noun شدوذ the structure in Arabic is the same in English.

Sample: 12

English term	Arabic term	Technique of translation
Overriding aorta	الأبهر الممتطى	Literal translation

Overriding aorta

Is a congenital heart defect where the aorta is positioned directly over a ventricular septal defect (VSD), instead of over the left ventricle. The result is that the aorta receives some blood from the right ventricle, causing mixing of oxygenated and deoxygenated blood, and thereby reducing the amount of oxygen delivered to the tissues.

The term is translated via the procedure of literal translation with same meaning and structure of the words ,the word overriding is translated to the Arabic adjective الممتطى and the noun aorta translated to the Arabic noun الأبهير

Sample: 13

English term	Arabic term	Technique of translation
Circulatory system	الجهاز الدوري	Literal translation

Circulatory system

The circulatory system, also called the cardiovascular system or the vascular system, is an organ system that permits blood to circulate and transport nutrients (such as amino acids and electrolytes), oxygen, carbon dioxide, hormones, and blood cells to and from the cells in the body to provide nourishment and help in fighting diseases, stabilize temperature and pH, and maintain homeostasis.

The term is translated via the procedure of literal translation with same meaning and structure of the source text

Circulatory translated to the Arabic adjective الدوري and the noun system translated to the Arabic noun الجهاز .

Sample: 14

English term	Arabic term	Technique of translation
Septum	الحاجز	Literal translation

Septum

Is a wall, dividing a cavity or structure into smaller ones.

The term is translated literally to Arabic as it is in English the same meaning and structure of word ,the noun Septum translated to the arabic noun الحاجز

Sample: 15

English term	Arabic term	Technique of translation
Pulmonary stenosis	التضييق الرئوي	calque

Pulmonary stenosis

is a dynamic or fixed obstruction of flow from the right ventricle of the heart to the pulmonary artery. It is usually first diagnosed in childhood.

The term is translated via the procedure of CALQUE translated as it is semantically and formally the adjective Pulmonary translated to the Arabic adjective الرئوي the noun stenosis translated to the Arabic noun التضييق

Sample: 16

English term	Arabic term	Technique of translation
Balloon atrial septostomy	فغر الحاجز الأذيني	Literal translation

Balloon Atrial septostomy

Is a surgical procedure in which a small hole is created between the upper two chambers of the heart, the atria. This procedure is primarily used to palliate dextro-Transposition of the great arteries or d-TGA (often imprecisely called transposition of the great arteries), a life-threatening cyanotic congenital heart defect seen in infants. It is performed prior to an arterial switch operation.

The term is translated literally to Arabic as it is in English the same meaning and structure of words .The word Balloon is translated to the arabic noun فغر ,the noun atrial translated to Arabic adjective الأذيني and the adjective septostomy translated to the Arabic noun الحاجز

Sample: 17

English term	Arabic term	Technique of translation
Levo-transposition of ,the great arteries	الانقلاب الأيسر للشرايين الكبيرة	Literal translation

Levo-Transposition of the great arteries

is an acyanotic congenital heart defect in which the primary arteries (the aorta and the pulmonary artery) are transposed, with the aorta anterior and to the left of the pulmonary artery; the morphological left and right ventricles with their corresponding atrio ventricular valves are also transposed.

The term is translated literally to Arabic as it is in English the same meaning and structure of words, the word Levo is translated to the arabic adjective الأيسر the word transposition translated to the arabic noun الانقلاب great translated to الشرايين الكبيرة arteries translated to الشرايين

Sample: 18

English term	Arabic term	Technique of translation
Atrial septal defect (ASD)	عيب الحاجز الأذيني	Literal translation

Atrial septal defect (ASD)

is a congenital heart defect in which blood flows between the atria (upper chambers) of the heart. Some flow is a normal condition both pre-birth and immediately post-birth via the foramen ovale; however, when this does not naturally close after birth it is referred to as a patent (open) foramen ovale (PFO). It is common in patients with a congenital atrial septal aneurysm (ASA).

Also here the procedure used during the translation is the literal translation with respecting the structure and the meaning of the source language.

The adjective Atrial translated into arabic adjective الأذيني ,the noun Septal translated to the noun الحاجز the noun Defect translated into the arabic noun عيب.

Sample:19

English term	Arabic term	Technique of translation
Senning procedure	عملية سنينغ	calque

Senning procedure

is an atrial switch heart operation performed to treat transposition of the great arteries. It is named after its inventor, the Swedish cardiac surgeon Åke Senning (1915–2000).

The translator used the procedure of calque to transfer express the meaning literary, maintaining the source language structure and the manner of expression, the proper noun Senning left as it is in English سنينغ and the noun Procedure translated into Arabic noun عملية

Sample:20

English term	Arabic term	Technique of translation
Rastelli procedure	إجراء راستيلي	calque

Rastelli procedure

is an open heart surgical procedure developed by Italian physician and cardiac surgery researcher, Giancarlo Rastelli in 1967 at the Mayo Clinic,

Ajmer and involves using a pulmonary or aortic homograft conduit to relieve pulmonary obstruction in double outlet right ventricle with pulmonary stenosis.

The translator used the procedure of calque to transfer the meaning literary, maintaining the source language structure and the manner of expression Rastelli translated to *راستيلي* procedure translated to *إجراء*

Sample: 21

English term	Arabic term	Technique of translation
Truncus arteriosus	الجذع الشرياني	Literal translation

Truncus arteriosus

Is a structure that is present during embryonic development. It is an arterial trunk that originates from both ventricles of the heart that later divides into the aorta and the pulmonary trunk.

The procedure used during the translation is the literal translation without changing the meaning or the structure of the source language

The noun Truncus is translated into arabic noun *الجذع* and the noun Arteriosus translated to the arabic adjective *الشرياني*.

Sample: 22

English term	Arabic term	Technique of translation
Pulmonary trunk	الجذع الرؤي	Literal translation

Pulmonary trunk

In order of blood flow, the pulmonary arteries start as the pulmonary trunk or main pulmonary artery. The main pulmonary artery begins at the base of the right ventricle.

The term is translated literally by using the procedure of literal translation without changing the meaning or the structure of the source language

Pulmonary translated to الرؤي the noun Trunk translated into the Arabic noun الجذع.

Sample:23

English term	Arabic term	Technique of translation
Aorta trunk	الشريان الأبهر	Literal translation

The aorta

Is the main and largest artery in the human body, originating from the left ventricle of the heart and extending down to the abdomen, where it splits into two smaller arteries (the common iliac arteries). The aorta distributes oxygenated blood to all parts of the body through the systemic circulation.

The term is translated literally without changing the meaning or the structure of the source language the noun Aorta translated into arabic noun الأبهر and noun trunk translated into Arabic الشريان.

Sample:24

English term	Arabic term	Technique of translation
Subclavian artery	شريان تحت الترقوة أو الشريان الرئوي	paraphrase

Subclavian arteries

Are paired major arteries of the upper thorax, below the clavicle. They receive blood from the aortic arch.

The term is translated via the procedure of paraphrase to express the meaning of the word subclavian, sub تحت clavian الترقوة, artery شريان.

Sample: 25

English term	Arabic term	Technique of translation
Right atrium	الأذين الأيمن	Literal translation

The right atrium (RA)

Is one of the four chambers of the human heart, and is the first chamber to receive deoxygenated blood returning from the body, via the two venae cavae. It plays an important role in originating and regulating the conduction of the heart.

The term is translated literally without changing the meaning or the structure of the source language the adjective Right translated into the

Arabic adjective الأيمن the noun Atrium translated into the arabic noun الأذنين .

Discussion of the Results

This research shows that literal translation were the most dominant technique applied in the translation of cardiovascular terminology ,and both of the frequencies are of similar importance ;we can also notice that the most common term belongs to the high frequency colon. The compound words are the dominant structure especially the structure especially (N+N) The most of the terms are derived from the Latin language.

One of the aims of this dissertation is to highlight the translation techniques adopted usually by the medical translators during translating cardiovascular terminology into Arabic:

1. Borrowing
2. Calque
3. Paraphrase
4. Transliteration
5. Literal translation

Technique of translation	frequency	Percentage %
Borrowing	0	0%
Calque	6	24%
Paraphrase	2	8%
Transliteration	1	4%
Literal translation	16	64%

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